

FASTENING DEVICE FOR PEDALS OF EXERCISERS

FIELD OF THE INVENTION

The present invention relates to a fastening device for securing users' feet on the pedals and the fastening device allows the users to quickly and conveniently adjust it.

BACKGROUND OF THE INVENTION

A conventional fastening device for securing users' feet on pedals of exercisers is shown in Figs. 1 and 2 and generally includes two T-shaped protrusions 11, 12 on two ends of the pedal 1 and a fastening belt 15 having holes 16, 17 defined therethrough so that one of the holes 16 close to one end of the belt 15 is engaged with the protrusion 11, and one of the holes 17 close to the other end of the belt 15 is engaged with the other protrusion 12. The user's foot is then secured on the pedal 1 by the fastening belt 15. The user has to pull the fastening belt 15 to enlarge the size of the holes 16, 17 so as to successfully mount to the protrusions 11, 12 and this requires a lot of force. This increases the time required to adjust the fastening belt 15. The distance between the holes 16, 17 limits the adjustment of the fastening belt 15 so that the conventional fastening device cannot meet requirement of different users.

The present invention intends to provide a fastening device that is easily to operate and can be adjusted at small scale.

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention, there is provided a fastening device on pedals and the device comprises a first belt having an end connected to an end of the pedal and a lock assembly is connected to the other end of

the first belt. The lock assembly comprises a base and a pawl which is pivotably connected to the base. A torsion spring is connected between the pawl and the base. First teeth are defined in an end of the pawl.

5 A second belt has an end connected to the other end of the pedal and the other end of the second belt is inserted between the base and the pawl. Second teeth are defined in a side surface of the second belt and are engaged with the first teeth.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the
10 present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a cross sectional view to show a conventional fastening device and a pedal;

15 Fig. 2 shows a side view to show one of the holes in the fastening belt of the conventional fastening device is engaged with the protrusion on the pedal;

Fig. 3 is an exploded view to show the fastening device of the present invention and a pedal;

Figs. 4 and 5 show that the second belt is inserted in the lock assembly and is locked thereby;

20 Figs. 6 and 7 show that the first belt is adjusted according to the size of the foot of the user;

Fig. 8 shows the second belt is integrally connected to the pedal;

Fig. 9 shows both the first belt and the second belt are fixed to the pedal by a bolt;

Fig. 10 is an exploded view to show another embodiment of the fastening device of the present invention and a pedal;

Fig. 11 shows the second belt is inserted in the lock assembly;

Figs. 12 to 14 show the continuous actions of the pivotal action of the pusher to move the second belt toward the pawl.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figs. 3 to 5, the fastening device on pedals 1 of the present invention comprises a first belt 20 having first holes 201 defined in the first end thereof and one of the first holes 201 is engaged with a protrusion 10 on the pedal 1. A lock assembly 3 is connected to the other end of the first belt 20. The lock assembly 3 comprises a base 30 and a pawl 32 which is pivotably connected between two side walls 301 of the base 30 by extending a pin 5 through two holes 302 defined respectively in two side walls 301 of the base 30 and an intermediate portion of the pawl 32. The pawl 32 includes an operation end 321 and an engaging end which has first teeth 320. The intermediate portion is located between the operation end 321 and the engaging end so that when pushing the operation end 321, the engaging end is pivoted away from the base 30. A torsion spring 31 is connected between the pawl 32 and the base 30.

A second belt 21 has a first end with a plurality of holes 211 and one of which is engaged with a protrusion 11 on the pedal 1. A second end of the second belt 21 is inserted between the base 30 and the pawl 32. Second teeth 212 are

defined in a side surface of the second belt 21 and engaged with the first teeth 320 of the pawl 32 so that the user's foot is positioned between the pedal 1 and the first belt 20 and the second belt 21.

As shown in Figs. 6 and 7, the user may also adjust the first belt 20 by engaging the protrusion 10 with another hole 201 so as to allow a larger foot positioned by the fastening device of the present invention.

Fig. 8 shows that the second belt 21 can be integrally connected to the pedal 1. Fig. 9 shows that both the first belt 20 and the second belt 21 can be fixed to the pedal 1 by a bolt 6.

Referring to Figs. 10 and 11, another embodiment of the fastening device of the present invention comprises a first belt 20 having first holes 201 defined in a first end thereof and one of the first holes 201 is engaged with a protrusion 10 on the pedal 1. A lock assembly 3 is connected to a second end of the first belt 20. The lock assembly 3 comprises a base 30 and a pawl 32 which is pivotably connected between two side walls 301 of the base 30 by extending a pin 5 through two holes 302 defined respectively in two side walls 301 of the base 30 and an intermediate portion of the pawl 32. The pawl 32 includes an operation end 321 and an engaging end which has first teeth 320. The intermediate portion is located between the operation end 321 and the engaging end so that when pushing the operation end 321, the engaging end is pivoted away from the base 30. A torsion spring 31 is connected between the pawl 32 and the base 30.

A pusher 33 is pivotably connected between the two side walls 301 by extending a pin 50 through two slots 303 in the two side walls 301 and the pusher 33.

Another torsion spring 31 is connected between the pusher 33 and the base 30. The pusher 33 includes push teeth 330 defined in an end thereof and a handle end 331, wherein the pin 50 is located between the handle end 331 and the push teeth 330.

5 A second belt 21 has a hole 211 defined in an end thereof and the hole 211 is engaged with a protrusion 11 on the pedal 1. The other end of the second belt 21 is inserted between the base 30, the pawl 32 and the pusher 33. Second teeth 212 are defined in a side surface of the second belt 21 and engaged with the first teeth 320 of the pawl 32.

Referring to Figs. 12 to 14, the push teeth 330 are engaged with the second
10 teeth 212 of the second belt 21 by pivoting the pusher 33 clockwise so as to push the second belt 21 toward the pawl 32. Due to the profile of the first teeth 320, the second belt 21 can move over the first teeth 320. The pin 50 is moved between two ends of the slots 303 when reciprocally operating the push teeth 330 to push the second belt 21. The second belt 21 is adjusted by repeatedly operating the pusher 33
15 till a desired tightness is reached. The pawl 32 and the pusher 33 can be pivoted to disengage the first teeth 320 and the push teeth 330 from the second teeth 212 on the second belt 21 by pushing the operation end 321 and the handle end 331 respectively.

20 While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.